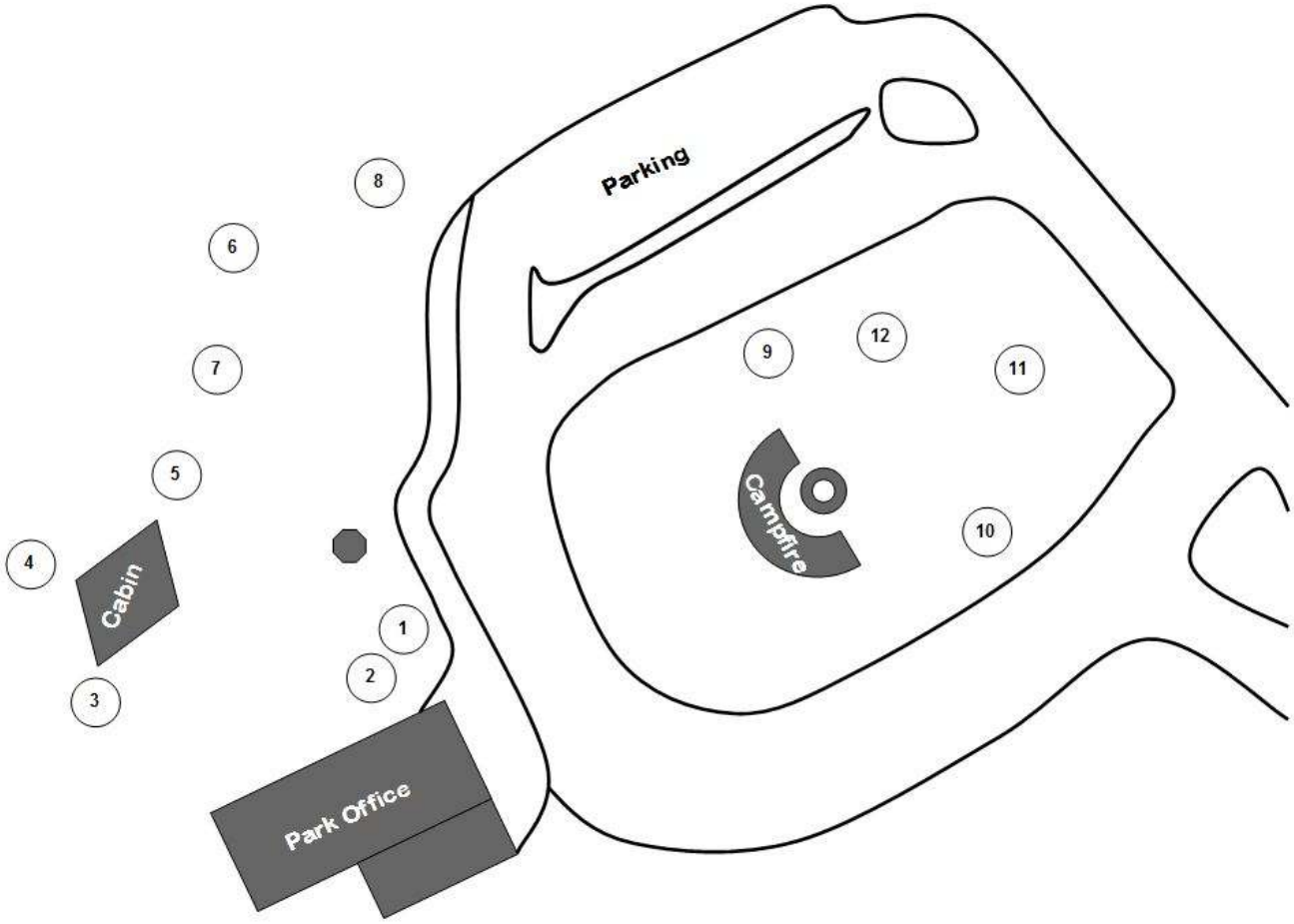
Branches of Histor-tree

The park office is located on the grounds of the former Clopper family estate. The Clopper family enjoyed these natural surroundings from 1812 until 1955 and served as environmental stewards, planting a diverse group of trees on their land. This quest will take you through the Woodlands to learn about the value, uses, and diversity of various tree species and how to identify them using those unique features.

Trees have many unique characteristics that set them apart from one another. Use whatever characteristics stand out to you in order to make it easiest to identify the trees. Not all tree features are always visible so it is good to be able to identify a tree many different ways. Leaves are one of the easiest ways to tell trees apart, but many leaves fall off in the changing seasons. In the winter months you can look at types of bark, while the spring exhibits different buds and flowers on trees. Sometimes the shape of the tree gives away its identity from long distances.

In this quest, you will be responsible for identifying the characteristics of 12 trees featured in the Woodlands area around the Park Office. Each tree is labeled with both a common name and scientific names. Though there are many other trees in the area, you will only inspect the ones that have a numbered post next to them and are featured on the map in your worksheet.



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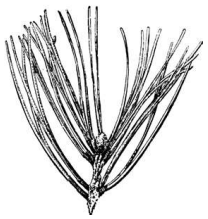
1. Flowering Dogwood
2. Eastern Red Cedar
3. Eastern White Pine
4. Kentucky Coffee
5. Tulip Poplar
6. Box Elder
7. Tree of Heaven
8. Osage Orange
9. Sassafras
10. Mimosa
11. Black Cherry
12. White Oak

To begin your quest, read through Basic Leaf Identification to get an idea of what features to look for on a tree.

BASIC LEAF IDENTIFICATION

The first step in tree identification is to know that there are distinguishing characteristics that separate one tree species from another. By examining different tree parts you will be able to confidently identify the different trees. This will require some detective work on your part, but with some practice it can be fun and relatively easy to do! Below are some basic terms and concepts about trees leaves that will help you get started. As you become more familiar with this process, you will soon discover that basic leaf identification skills are just a piece of the puzzle to solving the mystery of "What tree is that?!"

First, there are three basic types of leaves—*needles, scale-like,* & *broad.*

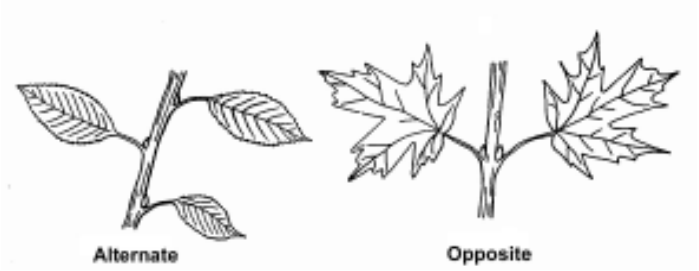


Needles

Scale-like

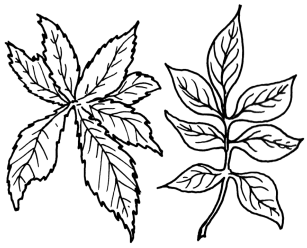
Broad

Next, leaves are displayed on branches in either an *alternate* or *opposite* pattern.



Now, we will need to look a little more closely to see what other characteristics we notice. *Simple* leaves have a single margin that runs continuously from one side of the leaf base to the other. *Compound* leaves are divided into segments called leaflets. Leaflets look like leaves but are attached to the tip of the leafstalk rather than directly to a twig, branch, or stem.

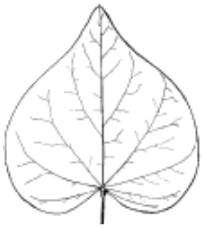
Simple



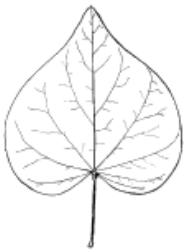
Compound

Another important characteristic to note is whether a leaf is *lobed* or *unlobed.* Lobed refers to the major projections that shape the leaf. Unlobed leaves, then, are those with consistent edges.

Lobed



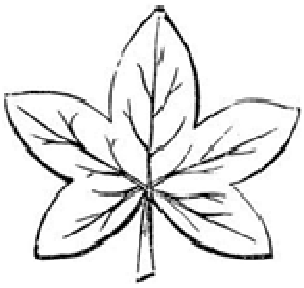
Also, is the leaf edge *smooth* or *toothed.*



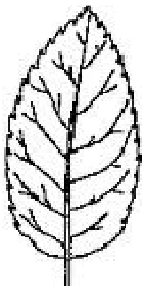
Smooth

Toothed

Finally, we will determine whether the leaf is *palmate* or *pinnate.* If a tree has leaves where ribs or veins radiate out of the stalk or petiole attachment like fingers on a hand, then it is considered palmate. If the leaves have several ribs or veins going into lobes that extend from a central vein, then it is pinnate.



Palmate



Pinnate

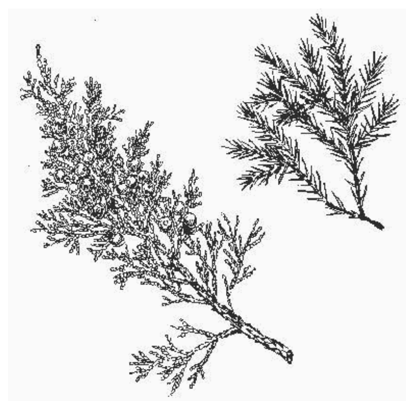
Part I

Now that you know how to identify leaf types you will use your investigative skills to match the leaves pictured on the following pages with actual trees in the Woodlands area.

On the next several pages, there are 12 sets of pictures that show tree silhouettes, leaves, buds and/or seeds followed by a written tree description. Each set of pictures and descriptions matches the features of one of the 12 numbered trees found in the Woodlands on your map. It is your quest to inspect each tree and try to match it to the correct set of pictures in your workbook. Write the common name of the tree and its number in the blank for the features you think best match.

- -

Tree name: ____



LEAVES: Trees bear both scale-like (mature branches; more common) & needle-like (younger branches) leaves on the same tree; leaves are opposite.

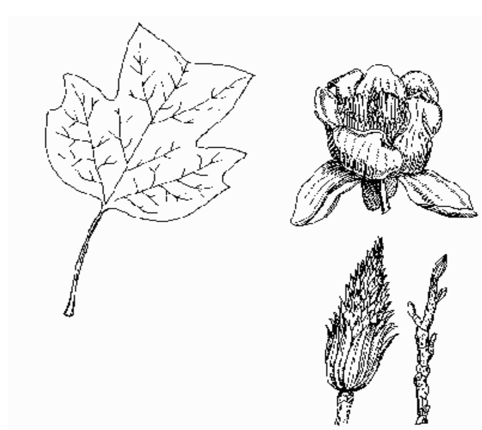
TWIGS: Slender; 4-sided.

FRUIT/FLOWER: Bluish berry-like, covered with a whitish powder; flesh sweet and resinous; contains 1-2 seeds. Ripens the first year.

BARK: Reddish brown, peeling off in stringy and flaky strips.

- -

Tree name: ____



LEAVES: Alternate, simple, pinnate, generally 4 lobes, bright green, turning yellow in autumn.

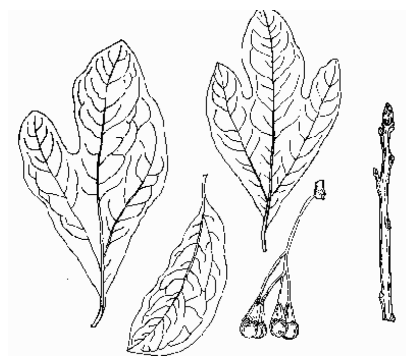
TWIGS: In spring and summer, green, sometimes with purplish tinge; during winter reddish brown, smooth, shiny. Buds are large, smooth, flattened, "duck-billed."

FRUIT/FLOWER: At first green, turning light brown when ripe in autumn; cone-like, made up of winged seeds. Greenish yellow tulip-like flowers in May or June.

BARK: Young trees are dark green and smooth with whitish vertical streaks, older trunks dark gray and furrowed.

- -

Tree name: ____



LEAVES: Alternate, simple, palmate, long, smooth, dark green above, much lighter beneath, characteristically aromatic when crushed. Usually three types can be found on a tree: entire, 2-lobed and 3-lobed (rarely 5-lobed).

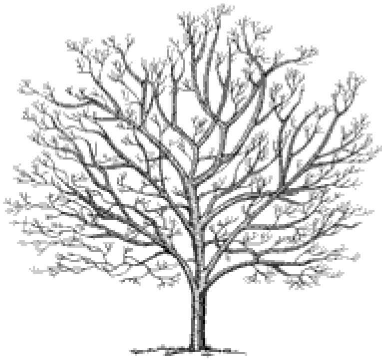
TWIGS: Bright green, sometimes reddish, smooth and shiny; large white pith. End bud is much larger than side ones, with many loose scales.

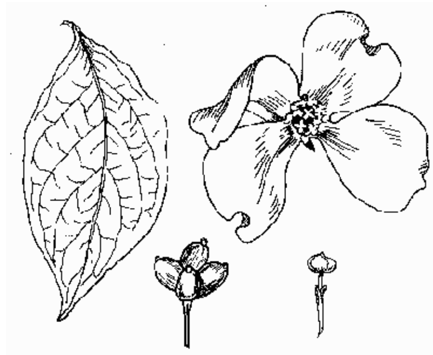
FRUIT/FLOWER: Fruit is a shiny dark blue berry on a red stem, enlarged at the point of attachment; borne in clusters. Yellow flowers appear before the leaves unfold.

BARK: Young trees are furrowed, greenish, changing to brown; inner bark is salmon colored; older trees show deep fissures extending long distances up the trunk.

- -

Tree name: ________________________________





LEAVES: Opposite, pinnate, smooth margins, and are clustered toward tips of twigs. Leaves are broad with a pointed tip and have 6-7 prominent veins that curve like a bow.

TWIGS: Usually dark purple, sometimes green, often swollen from insect bites.

FRUIT/FLOWER: Fruit is egg-shaped and shiny red, usually in clusters of 2-5. Flowers are tightly packed yellowish green clusters, surrounded by four showy petal-like white bracts.

BARK: The bark on mature trees is broken into small square blocks that give the stem an "alligator" appearance.

- -

Tree name: ________________________________

LEAVES: Alternate, compound, pinnate, composed of 11-41 leaflets, the lower with a few coarse teeth near the base which have distinctive glands.

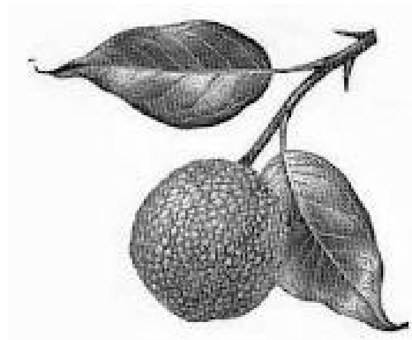
TWIGS: Stout, yellowish-green to reddish-brown, covered with a fine velvety down; Pith large, rather hard, light brown. Twigs have a rank odor when broken.

FRUIT/FLOWER: A spirally twisted wing, with 1 seed in the center, clusters often persist far into winter. Male and female flowers occur on separate trees.

BARK: Younger trunks smooth, light gray, older roughened with dark ridges, becoming dark gray and sometimes black.

- -

Tree name: ______________________________



LEAVES: Alternate, simple, broad elliptic shape, with long pointed tip; smooth margins.

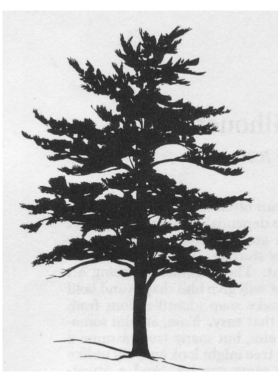
TWIGS: The twigs are stout and reddish or chestnut in color; thicket-forming.

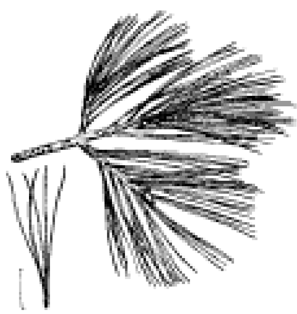
FRUIT/FLOWER: Green to yellow-green fruit is spherical, with a brain-like, bumpy surface. Tiny, white flowers hang in dense clusters.

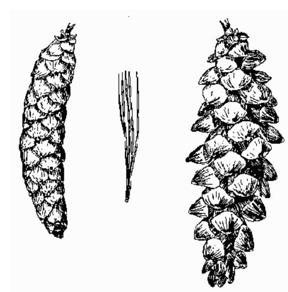
BARK: Orange-tinged brown and deeply furrowed.

- -

Tree name: ______________________________







LEAVES: Evergreen needles in clusters of 5; are soft, flexible, 3-sided, and bluish green.

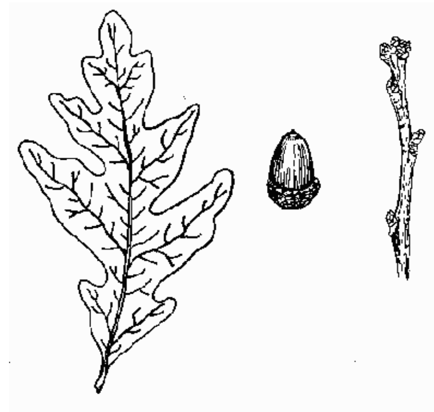
TWIGS: Slender, flexible, with rusty hairs when young, later smooth. Buds are egg-shaped and gray-brown.

FRUIT/FLOWER: Bear cones, without prickles, slightly curved, resinous; each scale usually bears 2 winged seeds.

BARK: Young trunks and branches greenish brown, later darker grooved and scaly.

- -

Tree name: ____



LEAVES: Alternate, simple, pinnate, with 6-10 rounded lobes; bright green above, paler below, both surfaces smooth on mature leaves.

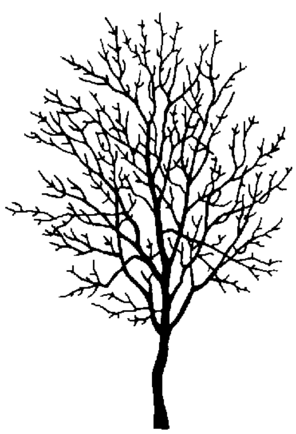
TWIGS: Red-grey, often with a grayish coating. Buds rounded, reddish-brown, smooth; end buds clustered.

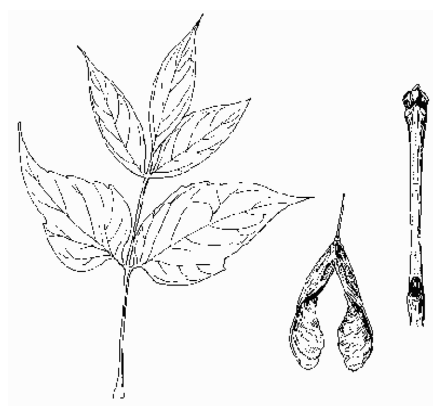
FRUIT/FLOWER: An acorn, light brown, cup bowl like, hairy inside, enclosing ¼ of the nut; cup scales warty at the base. Acorn ripens in September after one season.

BARK: Pale grey, scaly, not deeply fissured, often flaky.

- -

Tree name: ____





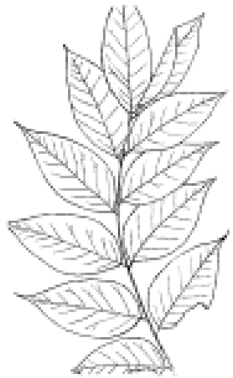
LEAVES: Opposite, compound, pinnate, with 3-5 coarsely and irregularly toothed leaflets.

TWIGS: Stout, purplish-green or green, sometimes smooth but often with a whitish coating and scattered raised lenticels.

FRUIT/FLOWER: Wings, parallel or in-curved, borne in drooping clusters. Fruits mature in September but fruit-stalks persist far into winter.

BARK: Branches and young trunks smooth and grayish-brown, older trunks distinctly narrow ridged and seldom scaly.

Tree name: ______________________________



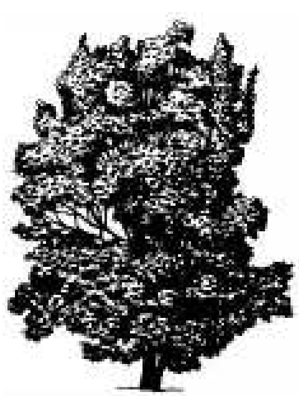
LEAVES: Alternate, doubly compound, with about 9 broad oval-shaped leaflets that have smooth margins and are pointed.

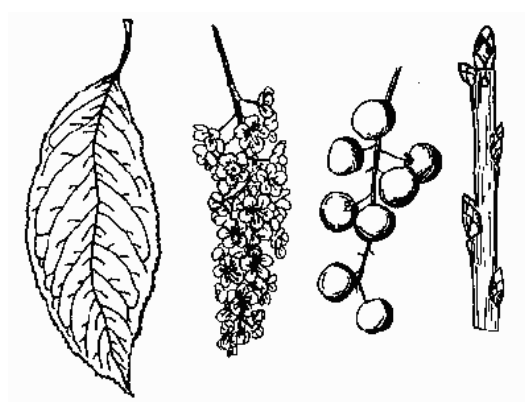
TWIGS: Very stout, scaly, and somewhat whitened.

FRUIT/FLOWER: Fruit is a broad, leathery, dark brown pod, pulpy inside with 6-8 seeds. Flowers are whitish, clustered; show from May-June.

BARK: Dark trunk with coarse ridges.

Tree name: ______________________________





LEAVES: Alternate, simple, pinnate, narrow with tapering tip, shiny above, paler below and usually with one or more small glands at the base; margins with short in-curved teeth which distinguish it from other cherries.

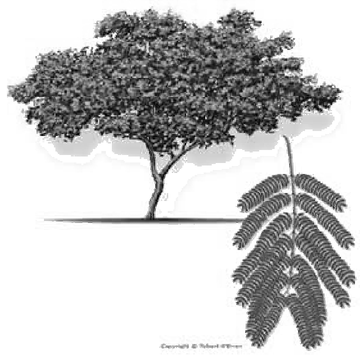
TWIGS: Smooth, reddish brown, marked with numerous pale, round lenticels; often covered with a thin gray coating which rubs off easily. Buds smooth, shiny, sharp-pointed, reddish brown tinged with green.

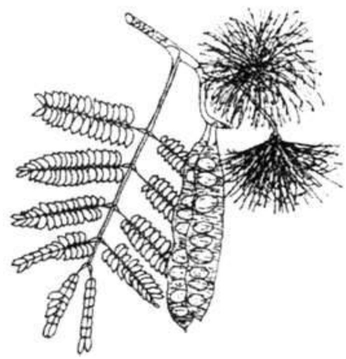
FRUIT/FLOWER: Fruits are round, black with a purplish tint, containing a single round, stony seed; arranged in hanging clusters. Flowers white.

BARK: Mature tree trunk has a rough dark outer bark, often exposing red-brown under bark where cracked. Bark is marked with short horizontal lines.

- -

Tree name: ____





LEAVES: Opposite, compound and fernlike, with 3-12 pairs of featherlike primary segments. Each segment bearing 15-30 leaflets. Green above; paler green underneath.

TWIGS: Brown or gray; often angled.

FRUIT/FLOWER: Fruit is a wide, flattened green pod containing several oval light brown seeds. Flowers are wide, round, pink clusters of many tiny 5-petaled flowers.

BARK: Blackish or gray; nearly smooth.

Part II

Did you match up all of your trees? If you did, great job! If not, no worries. You can use your tree guide to help out or if a ranger is available we can help you once you return to the main desk. In this section you can read about all of the neat things trees were used for by the Native Americans, the Clopper family, and what the trees are still used for today. Answer the questions at the end of each paragraph to help complete the quest.

Black Cherry *(Prunus serotina)*

GENERAL: Black cherry thrives best in fertile alluvial (silted) soil but also grows on dry slopes. The twigs, roots, and fruits of this tree have long been used by Native Americans to treat diarrhea, lung congestion, headaches, colds, and the common cough. The cherries were also a key ingredient in pemmican, a dried mixture of fruit, meat, and fat used during the winter months. The pioneers preferred to use it as a flavor enhancer, mixing the cherries with brandy or rum in order to make cherry bounce. Today, Black Cherry is known mostly for the value of its wood, but is also still used in commercial cough syrups. The wood is strong, durable and bends easily, is relatively free from warping, does not shrink much, and possesses a highly prized reddish color that darkens over time. For this reason, Black Cherry wood is often used in making cabinetry, fine furniture, flooring, doors, stair posts, handrails, gunstocks, piano actions, wall paneling, and caskets.

Who preferred to use the cherries from Black Cherry to enhance the flavor of their brandy?

___ ___ ___ ___ ___ ___ ___ ___

Box Elder *(Acer negundo)*

GENERAL: A medium sized tree, Box Elder is technically considered a maple tree (Acer genus) and is also often referred to as "Ashwood Maple." Its lumber is softer, weaker, and lighter than almost all other species of maple, making its overall strength relatively poor. Despite this, Native Americans found many uses for the Box Elder. Some of these include using the sap as a sweetener and the wood to create bowls, drums, pipe stems, and musical instruments. In fact, Box Elder was identified as the wood material used in the oldest flutes, now known as Anasazi flutes, from the Americas. In modern times, because of its drought and cold resistance, Box Elder's greatest use has been as a street tree and windbreak in the Great Plains and at lower elevations in the West. It is also used for decorative applications, such as turned items (bowls, stem-ware, pens, etc.), small ornamental objects, wood pulp, charcoal, boxes, and crates.

The Box Elder tree is technically what type of tree?

___ ___ ___ ___ ___

Eastern Red Cedar (*Juniperus virginiana*)

The Eastern Red Cedar is a slow growing and long-lived evergreen coniferous tree. Red cedar is adaptable to a variety of wet or dry conditions and is commonly found on roadsides, fields, and other open habitats. The fragrant wood of this tree possesses moth-repellant qualities and is used for items such as storage chests, cabinets, fence posts, and pencils. Cedar oil, distilled from leaves and wood, is another valued product of this tree that has been used by many cultures throughout history. For example, ancient Egyptians used cedar oil as part of the mummification process, Greeks utilized it to treat infections, Sumerians used it as a base for

paint, and American pioneers spread it on the floors of their homes to discourage pest infestation. As a result, cedar has been called "Arbor Vitae," or "tree of life."

The Eastern Red Cedar has been used and is still used today in making chests and cabinets

because of its moth ___ ___ ___ __ ___ ___ ___ ___ ___ __ __ ___ ___ ___ ___ ___.

Eastern White Pine (*Pinus strobus*)

Eastern White Pines are large trees that usually grow to 50-90 feet, but can reach heights of 150 feet and more. Native Americans were said to have used the inner bark as an emergency food source. The whitish resin which seeps out of the wounds of this tree was mixed with beeswax by the Iroquois and used to seal the seams of their canoes. Used in cabinetmaking, furniture, woodenware, matches, and lumber, the White Pine produces some of the most valuable softwood lumber in eastern North America. It does not swell or shrink greatly and displays remarkable durability as demonstrated by the large number of existing houses that were built from this tree in New England more than 200 years ago. Today, White Pine wood is used extensively for interior trim, window sashes, door frames, boxes, boats, and intricate carpentry finish work. It is a tree that is also commonly grown for use as Christmas trees!

What characteristic made the eastern white pine valued for making houses in New England more than 200 years ago?

___ __ ___ __ ___ ___ ___ ___ ___ __

Flowering Dogwood (*Cornus florida*)

The bark of the Flowering Dogwood is red-brown to reddish gray and is broken into small blocks, like alligator hide. Native Americans used parts of the Dogwood tree to treat a variety of ailments. A drink can be made from the bark, flowers, and fruit to reduce fever and relieve chills. Native Americans from the Virginia area chewed on twigs from the tree, which created a frayed "brush" that kept their teeth white. They also used the tree to create a juice that preserved their gums. Pioneers used the powered bark in toothpaste, black ink, and as an aspirin-like pain reliever. Today, the hard close-grained wood of the Flowering Dogwood is used to make textile weaving shuttles, tool handles, mallets, and heads of golf clubs. However, the most widespread use of this slow-growing deciduous tree is for decorative landscaping.

Native Americans used the Flowering Dogwood to treat a variety of ___ __ ___ ___ ___ __ ___ ___.

Kentucky Coffee Tree *(Gymnocladus dioica)*

The Kentucky Coffee Tree is a relatively fast-growing tree and generally grows in parks and along city streets for ornamental purposes. The tree is typically long-lived, however often appears dead for the first six months of its growth because it sheds its leaves early during the fall and therefore appears bare throughout the winter months. When Kentucky was first settled, the adventurous pioneers from the Atlantic States fancied that they had discovered a substitute for coffee in the seeds of this tree. However the bitter taste never caught on and Kentucky "coffee" was gladly abandoned for the more favorable flavor of the Indian berry brought in through overseas trades.

What product was the Kentucky Coffee Tree used for that gave it its name, though never really gained popularity?

___ ___ ___ ___ ___ ___

Mimosa *(Albizia julibrissin)*

Mimosa leaves have served as a food source for wildlife, its flowers attracting nectar feeders such as the eastern tiger swallowtail butterfly. Though somewhat brittle, the tree's wood has historically been used in making furniture. In China, the bark is traditionally harvested, dried and used in the preparation of tonics and sedatives. In the "language of flowers," the tradition where meanings are assigned to various flowers, the closely related species *Mimosa pudica* signifies the qualities of sensitivity, shyness and modesty. Mimosa became popular in the Southeastern United States, but has spread to states as far north as Illinois and as far west as California.

What type of food source does the Mimosa provide to wildlife?

___ ___ ___ ___ ___ ___

Osage-Orange *(Maclura pomifera)*

The name of this tree comes from the Osage tribe, which lived near the home range of the tree, and the aroma of the fruit after it is ripe. The trees acquired the name bois d'arc, or "bow-wood", from early French settlers who observed the wood being used for war clubs and bow-making by Native Americans. Meriwether Lewis was told that the people of the Osage Nation esteemed the wood of this tree so much that they would travel many hundred miles in quest of it. These sharp-thorn trees were also planted as living fences along the edges of cattle farms before barbed wire was invented in the 1880's. Many Osage orange fence rows can still be found in the middle of wooded areas of Seneca Creek State Park that used to be farms. Osage orange was also commonly used as a windbreak in prairie states. In fact, Osage-Orange was one of the primary trees used in President Franklin Delano Roosevelt's "Great Plains Shelterbelt" WPA project, which was launched in 1934 as an ambitious plan to modify weather and prevent soil erosion in the Great Plains states. By 1942, the outcome of this project resulted in the planting of 30,233 shelterbelts containing 220 million trees that stretched for 18,600 miles.

What two uses was Osage Orange planted for that can still be seen today on farms and in the prairie states?

___ ___ ___ ___ ___ s and ___ ___ ___ ___ ___ ___ ___ ___ ___s

Sassafras *(Sassafras albidum)*

Sassafras trees are best known for safrole, the substance in the tree that creates its unique aroma. For centuries, sassafras root was used to make tea, refreshing beverages such as root beer, and medicinal tonics. During a brief period in the 17th century, sassafras was second only to tobacco as an export from the Colonies to Europe. In later years, as the science of chemistry developed, it was discovered that what made Sassafras oil so tasty was the chemical compound "safrole." However, in 1960, the FDA deemed safrole unsafe for human consumption because of its carcinogenic properties. Today, sassafras extracts, after being treated to

remove all but legally-permitted trace amounts of safrole, are still used in consumer products such as candy, beverages, perfumes, and soaps.

What substance found in Sassafras trees was found to be carcinogenic to humans and banned the tree from being used in consumer products?

__ ___ ___ ___ ___ __ ___

Tree of Heaven *(Ailanthus altissima)*

This tree is originally from China and was first planted in North America near Philadelphia by English settlers. In China, the Tree of Heaven has a long and rich history. It was mentioned in the oldest Chinese dictionary and medical texts for its purported ability to cure ailments ranging from mental illness to baldness. The roots, leaves and bark are still used today in traditional Chinese medicine, primarily as an astringent. The tree has been grown extensively both in China and abroad as a host plant for the ailanthus silk moth, a moth involved in silk production. The tree was first brought from China to the United States in the late 1700's and was initially hailed for its beauty. Enthusiasm waned after it was found to suppress biodiversity through its ability to quickly colonize disturbed areas and suppress other plant life by using a chemical called ailanthone, which poisons the soil preventing other plants from growing. The rapid growth of root sprouts makes the Tree of Heaven almost impossible to get rid of once it has established itself in a given area, but efforts to remove it should be taken if it is found.

What chemical produced by the tree of heaven prevents other plants from growing?

___ __ ___ ___ ___ __ ___ ___ ___ ___

Tulip Poplar *(Liriodendron tulipifera)*

The Tulip Poplar is a large, rapid growing tree, the tallest of the eastern hardwoods, that is valued for its timber and ability to provide. There is a long history of Tulip poplar folk remedies. It is believed that Native Americans used poplar extract for inflammation and infection. In the 1800s, early Americans reported uses of poplar for treating worms, jaundice, fever, bruises, joint pain, and swelling. Native Americans and early pioneers frequently hollowed out a single log to make a long dugout canoe, giving it the common name "canoe tree" in some regions. Daniel Boone is believed to have made a 60 foot long canoe from a single tulip tree. Today, the Tulip Poplar is used to make furniture, cabinetry, musical instruments, and wood veneer.

What products did Native Americans and early pioneers make using the entire length of a Tulip Poplar

tree? ___ ___ ___ ___ ___ __

White Oak *(Quercus alba)*

This tree is very important to both wildlife and people. For example, the acorn is an important food source for a variety of wildlife, while eastern Native Americans are known to have made flour from them. Native Americans also used white oak bark to treat various health problems such as diarrhea, chapped skin, asthma, mouth sores, fevers, and coughs. Today, White Oak bark is available in drugstores and health food stores in the form of ointments, extracts, and capsules. Traditional uses of White Oak wood include hardwood

flooring, whiskey barrels and boat building. In fact, one of America's most famous Revolutionary War ships, the USS Constitution ("Old Ironsides"), was made from White Oak wood. It is also the official State Tree of Maryland!

White Oak is especially important to Maryland because it is the ___ ___ ___ ___ ___ tree.

Part III

Trees have many physical uses as you have just read and are valued for many different things, but they are also invaluable, meaning that they are worth more than any economic calculation that we can place on them. There are many things that trees do for us that tend to be overlooked. Trees cool the air by shading the earth, provide a buffer for our waterways by filtering pollutants in water runoff, filter the air we breathe by converting carbon dioxide into oxygen, and simply make us feel better. Trees provide a quality of life for all living creatures and it is up to us to make sure they continue to do so.

Many forests are now under attack due to the stresses of development and over use by people. Parks and forestry departments are currently studying ways to help promote the growth of healthier forests. One of the ways to keep forests healthy is by—believe it or not—cutting down trees!! It is actually healthy to cut trees that are "sick" from viruses or under attack by pests. Cutting down the sick trees gives the remaining trees in the area a better chance of not catching the same viruses or pests. Healthy trees are cut in order to provide products like the ones mentioned in this quest. Whether you know it or not, you probably use trees every day in some way. You can do your part to help tree populations by using sustainable products, recycling, and learning about local environmental regulations.

To complete Seneca's 2018 Park Quest, take the letters shaded in gray from your answers in Part II and unscramble them to fill in the three blanks below to reveal your pledge!

I/we, _____, pledge to do my/our part
(team name here)

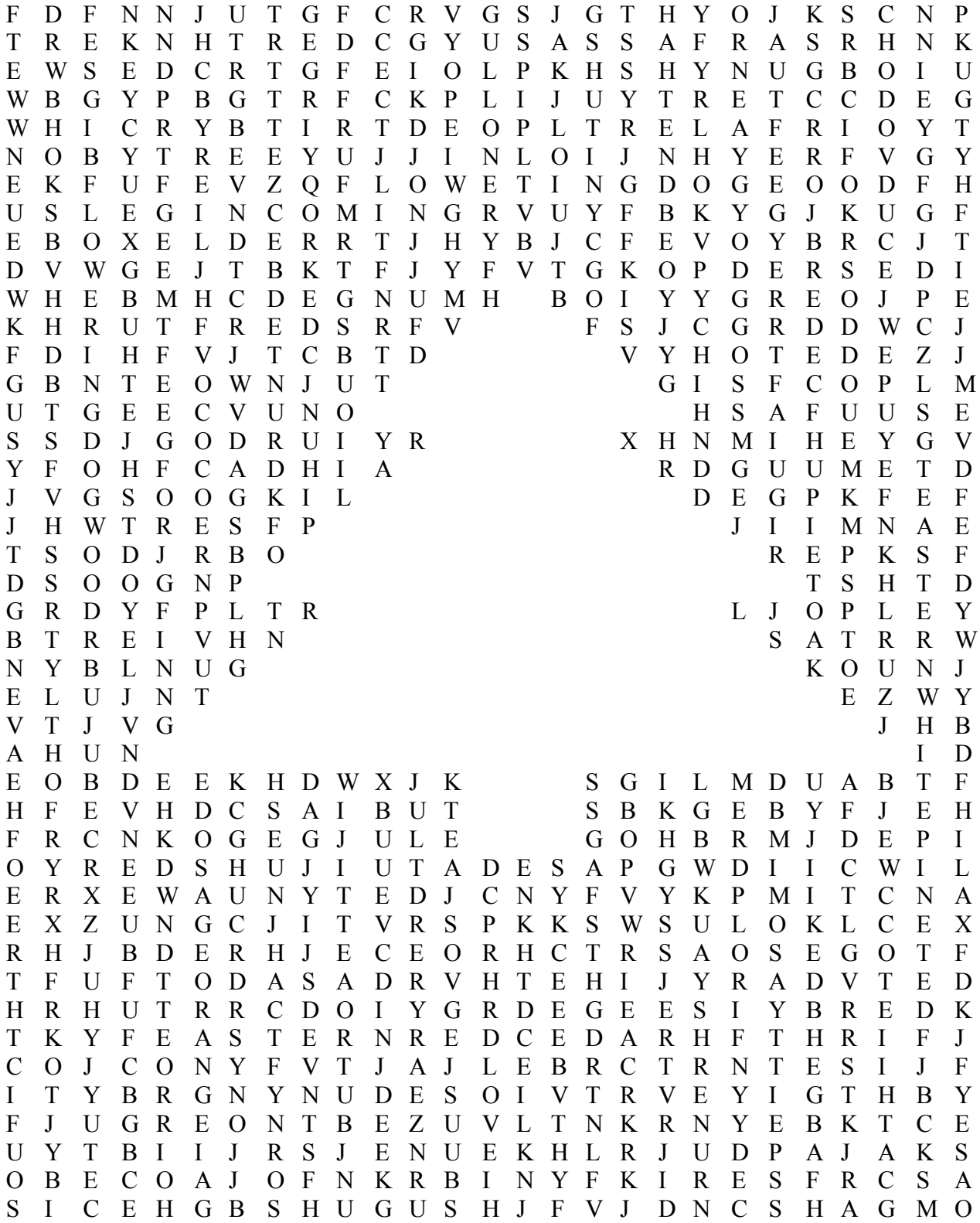
and help keep the forests healthy by purchasing and using products in a

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ manner, giving trees time to grow and replenish the

forests and provide us and all other creatures with a better ___ ___ ___ ___ ___ ___ ___ of life.

I/we speak for the ___ ___ ___ ___ ___!

Tree Word Search



1. Flowering Dogwood
2. Eastern Red Cedar
3. Eastern White Pine
4. Kentucky Coffee
5. Tulip Poplar
6. Box Elder
7. Tree of Heaven
8. Osage Orange
9. Sassafras
10. Mimosa
11. Black Cherry
12. White Oak